

Applicant : Eric K. Larson
Serial No. : 10/042,525
Filed : October 19, 2001
Page : 2 of 5

Attorney's Docket No.: 04513-023001

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

Claims 1-11 are cancelled.

12. (Currently Amended) Apparatus comprising

a coupling having (a) two open ends adapted for connection to upstream and downstream tubes of a pulsating oil circulation system of an engine and (b) a channel configured to direct the oil to flow past a thermistor connected to a sensing circuit,

the sensing circuit comprising elements connected to determine a change in a the voltage across the thermistor over time, and to compare the change to a threshold, and to generate a flow-state signal based on the comparison for use by a control circuit of the engine.

13. (Original) The apparatus of claim 12 in which the sensing circuit includes a sample-and-hold circuit connected to store a voltage across the thermistor.

14. (Original) The apparatus of claim 12 in which the sensing circuit includes a delay circuit connected to provide timing signals for the period over which the change in voltage is determined.

15. (Original) The apparatus of claim 12 in which the sensing circuit comprises a

Applicant : Eric K. Larson
Serial No. : 10/042,525
Filed : October 19, 2001
Page : 3 of 5

Attorney's Docket No.: 04513-023001

microcontroller that includes an analog-to-digital converter.

16. (Original) The apparatus of claim 12 also including ports connected to carry timing and flow-state signals between the sensing circuit and a control circuit of the engine.

Claims 17-21 are cancelled.

22. (Previously Presented) The apparatus of claim 12 also comprising a diode and in which the threshold is represented as a voltage drop across the diode.

23. (Previously Presented) The apparatus of claim 12 in which the thermistor is housed in a package having an area that yields an oil flow of 10 to 20 inches per second.

24. (Previously Presented) The apparatus of claim 23 in which the area is in the range of 0.0005 to 0.002 square inches exposed to the flowing oil.

25. (Currently Amended) Apparatus comprising
a coupling having (a) two open ends adapted for connection to upstream and downstream tubes of a pulsating oil circulation system of an engine and (b) a channel configured to direct the oil to flow past a thermistor connected to a sensing circuit, the thermistor being housed in a

Applicant : Eric K. Larson
Serial No. : 10/042,525
Filed : October 19, 2001
Page : 4 of 5

Attorney's Docket No.: 04513-023001

package having an area in the range of 0.0005 to 0.002 square inches exposed to the flowing oil and that yields an oil flow of 10 to 20 inches per second.

the sensing circuit comprising elements connected to determine a change in a the voltage across the thermistor over time, to compare the change to a pre-set threshold represented as a voltage drop across a diode, and to generate a flow-state signal based on the comparison for use by a control circuit of the engine, the sensing circuit comprising (1) a sample-and-hold circuit to store a voltage appearing across the thermistor, (2) a delay circuit to provide timing signals for the period over which the change in voltage is determined, and (3) a microcontroller that includes an analog-to-digital converter.